

## *The notion of the native*

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In this essay I will not so much impose on my own views, rather, as a starting point I will examine the terminology of the digital native and digital immigrant. While doing research, every piece of text I read seemed to have a point and I came to the conclusion that maybe it is not about the points that are made, but how the authors use their (self invented) terminology. What defines a digital native? In what context is the term used? I will try to explain what a digital native is, how this effects our lives (and mainly: how this effects the digital divide, the gap between the digital natives and the immigrants, I will dive into this through examples in education). I will try to put everything into perspective, by criticizing the essays I read, and then as a conclusion make a quick summary and give you my final thoughts on the matter.

# WHAT IS THE DIGITAL NATIVE?

"By age 20, kids will have spent 20,000 hours online –the same amount of time a professional piano player would have spent practicing."<sup>1</sup> Digital natives are those lucky souls born into and grown up in a technology immersed revolution. It is a turning point in history: after the 80s people grew up with the computer, substantially changing their lives, distinguishing them from their parents, the digital immigrants.

Digital natives have a culture of sharing: they share information and not only do they have the right to speak, but to be heard (natives are likely to be fans of Wikileaks). This makes that digital natives are usually more creative than the previous generations, they rip, mix, burn and upload content to encourage interaction.<sup>1</sup> Although they wrestle with the overload of (digital) information, one very popular strategy of coping with this situation is multitasking (parallel processing), which is likely to change learning qualitatively by making the student rely on different memory systems in the brain, as opposed to task-switching (rapidly changing from one task to another), which actually increases the time needed to complete an assignment.<sup>2</sup>

The immigrants learned to adapt to this new environment much later in life, therefore they have a certain 'accent' in their voice, something that reminds us of where they come from. Marc Prensky, the originator of these two terms, says, "they always retain, to some degree, their 'accent,' that is, their foot in the past. [...] Our

Digital Immigrant instructor who speak an outdated language (that of the pre-digital age), are struggling to teach a population that speaks an entirely new language."<sup>3</sup>

He mainly writes about the digital natives students in (high) school and how they are educated by digital immigrant or even the digital unaware professors, who are not fluent in this new language. This is because there is a huge gap between the digital natives and the digital immigrants, the digital divide. This gap happens for several reasons: technology, economy, social reasons, geographic reasons, fear of technology, lack of motivation, etc.

There are even guides online for digital immigrant parents who don't know what to do with their digital native child, because they have no clue of what's going on, or why their child is so drawn to this unknown field of internet and online video games.

## "A DIGITAL IMMIGRANT LOOKS FOR PHONE NUMBER IN A DIRECTORY, DIGITAL NATIVE LOOKS FOR A PHONE NUMBER ON THE WEB."

*Or the "Did you get my email?" phone call is also generally attributed to the immigrant.*

Digital natives are living a life online – from chats on Skype to comments on Facebook to vlogs on YouTube – they are presenting themselves, interacting with others, and publishing

their thoughts, desires, and experiences on the internet for others to see. They are often experimenting with identity, sometimes pranking other users on forums, but most of all: they are making connections with others.

Digital immigrants usually talk about their digital persona as if it were something completely different from their offline persona. Sure, online you find cliques or social groups with whom you share similar interests, which you cannot find so easily offline. You can have hobbies online that your friends don't really know about. I would say that there is only a small percentage of internet users that are considered 'trolls' or pose as someone else online. The 'digital persona' is an extension of who you are in your physical life and this is how the digital natives are using the internet. There is no such thing as 'going online' anymore. Online and offline are closely knit together, we are not just consulting the web mainly for information anymore, but through the use of social networking websites and all sorts of useful apps it interweaves our everyday lives, blurring the line between offline and online. The first generation can't imagine their life without internet.

As an article in Der Spiegel points out, numerous studies have revealed how young people actually use the Internet. The findings show that the image of the "net generation" is almost completely false - as is the belief in the all-changing power of technology itself.

"For a brief transition period, the Web seemed to be tremendously new and different, a kind of revolutionary power that could do and reshape everything. Young people don't feel that way. They hardly even use the word 'Internet,' talking

about 'Google', 'YouTube' and 'Facebook' instead. And they certainly no longer understand it when older generations speak of 'going online.'

'The expression is meaningless' [...] Indeed the term is a relic of a time when the Internet was still something special, evoking a separate space distinct from our real life, an independent, secretive world that you entered and then exited again."<sup>4</sup>

So, why are not all digital natives using technology according to the description of the 'net generation', making a god out of the internet? The answer is: people are different. The problem with the notion of the digital native is that people's lives are different, the way they were brought up was different, the amount of money their parents had to buy them expensive technology was different, and the knowledge their parents had of technology differs as well. In fact, these are all factors that define whether someone can be classified as a digital native or a digital immigrant.

When you generalize, of course people under 25 have more chances to become digital natives, and people over 25 are less likely to be digital natives, because of the lack of a technology immersed environment.

When Prensky states or at least implies that digital nativism is age bound, and that people under, let's say, 25 are digital natives<sup>3</sup>, he is partially wrong. Digital nativism is not age bound in the way that everyone under 25 immediately can be classified as a digital native. But, at the same time everyone above this limit can never be a digital native. Authors writing about this subject, convinced that everyone can be a digital native if they put their mind to it, are

<sup>1</sup> Urs Gasser, Social Networking Conference in the Westergasfabriek in Amsterdam, May 2009  
<http://www.ted.com/talks/tags/id/511>

<sup>2</sup> Urs Gasser and John Palfrey, Mastering Multitasking, March 2009

<sup>3</sup> Marc Prensky, Digital Natives, Digital Immigrants, October 2001

<sup>4</sup> Der Spiegel, June 8 2010, <http://www.spiegel.de/international/zeitgeist/0,1518,710139-2,00.html>

<sup>5</sup> Marc Prensky, Digital Natives, Digital Immigrants, Part II: Do They Really Think Differently?, December 2001, quoting:  
- Paul Perry, American Way, May 15 2000

- Renate Numella Caine and Geoffrey Caine, Making Connections: Teaching and the Human Brain, 1991

foolish. The mind of a digital native is physically different than that of someone not nursed in the luxury of technological advances.

There are various examples of researches that prove that the brain never stops reorganizing (neuroplasticity), meaning the brain structure changes and affects the way people think throughout their entire lives.<sup>5</sup>

One of the most interesting researches Prensky quotes is the following: "Researchers found that an additional language learned later in life goes into a different place in the brain than the language or languages learned as children."<sup>6</sup>

When a child is used to the proximity of phones, music, encyclopedia's on the laptop, text messages, chat sessions, and being online connected to their peers in general, it is unlikely that they will have patience for slow lectures and step-by-step logic. Their attention span is short and it's causing conflicts in the classroom. These students learn for a test properly with the TV shouting in the background, while they're listening to music (multitasking). Digital immigrants find this hard to believe, because they haven't been learning this skill for all of their formative years, and this is where the difference between the digital immigrants and the natives shows, and why the immigrants will never be native users: their brain is different.

How do we construct learning programmes for the digital natives? They are bored in class and can't focus their attention for very long. Prensky talks about the 'digital native methodology'. His solution is to invent digital native methodologies for all subjects, his personal way of doing this is to create game based teaching techniques. In short, he uses video games to

teach the native something, for example: how a certain AutoCAD application works.

But is this really helpful? They're still games designed with the help of digital immigrants for digital natives. Even though the brain of a digital native works significantly different than that of a digital immigrant, it is my opinion that these ways are trivializing the user, the students and employees of companies who use these games, in fact, it is insulting.

When you try to teach people a chunk of knowledge through a game, I feel that it's abusing the language of the digital native. It's belittling them, stating that they can only learn if they're fed small bites with a baby's spoon, by force feeding them with an assumed addiction. There's something uneasing about the older generation trying to understand the younger generation (which knows how to use the internet and digital appliances) and assuming they see what is happening here, and trying to find a solution for a problem they see.

I'll explain this further: At my high school teachers began noticing the drop in concentration levels of the students. They tried a radical new approach to teaching. Instead of being in the classroom, they introduced special classes in the hallway of one of the wings in the school, where there was a teacher walking around while the students could work on their homework while using a laptop, the small library or the knowledge of their classmates. This was done because natives apparently want to be able to freely move between information sources. They want to be connected to their peers and only reach out for help when needed. It was a big fail.

And as both Prensky and Gasser say about solving native-related problems: "using our students to guide us", so did my school, not

fully understanding the needs of the students. Have they ever asked us what we wanted? No. They implied, that because of 'our' nature, which is: finding useful information on the web ourselves, we don't need a teacher teaching us in the 'old way'. In their ideal picture, we could ask for help on the subject we wanted, when we wanted. This worked only for the geniuses in my high school. The rest of us was uncomfortable with taking the initiative ourselves at school. The error here is that the school board was still working with immigrant ideas: give the students a set of rules and they will examine the rules and use them. But "youth recognize[s] (...) structural properties and find[s] innovative ways of making these systems serve their purposes".<sup>7</sup> While non-natives ask for the rules, the digital native looks at his peers and deductively draws a conclusion on how he's supposed to use a certain platform.

## YOU ARE A VICTIM OF THE RULES YOU LIVE BY

TRUISMS (1979-1983)

- Jenny Holzer

Ah, school, this is the place where information reaches out to us, not the other way around.

There's still the problem of the short attention span. Students find a lot of things tedious, but let them solve the problem themselves I say. Not even by just letting them grow up and teaching the new digital natives themselves, but let them have an active role in working out a solution for problems that arise from their

digital lives.

I agree with Prensky that teaching the natives in a way that applies to them lies in how the subject is wrapped. But you cannot just buy fancy wrapping paper and expect the contents of the package to be entirely different so that it applies to a digital native. The games Prensky builds are simply ridiculous. They are adapted forms of known games, such as Pacman and Solitaire, where the gameplay gets interrupted by asking the user to answer a subject related question before they can continue.<sup>8</sup>

I do not want to be using these types of game for obtaining my information. I do not want to obtain information by mere child's play, this is not the Teletubby nation. The information in the game actually interrupts the game, making it dull to play.

Instead I want a teacher that can tell me vivid and exciting stories on his subject, one that talks to the students with passion and love for whatever he wants them to learn.

It seems to me that 'digital native' and 'digital immigrant' are terms that don't quite cover the overtone of digital literacy. Obviously, it is hard to label people and put them into certain categories. And because Prensky tries to do so, his game based learning is only applicable to a small group of people.

Another thing that I find bothersome, is that digital immigrants seem to think they can inhabit the world of the natives without problems, as long as they live there long enough. Even the youth can be divided into a group of 'residents' (people who use the internet as a place to live) and a group of 'visitors' (people that see the internet as a collection of useful tools).<sup>9</sup>

<sup>6</sup> Marc Prensky, Digital Natives, Digital Immigrants, Part II: Do They Really Think Differently?, December 2001, quoting:

- Inferential Focus Briefing, September 30 1997

<sup>7</sup> Danah Boyd, paper of The Society for Social Studies of Science (4S) Annual Conference, October 13, 2007

<sup>8</sup> <http://www.twitchspeed.com/site/games.html>

<sup>9</sup> <http://swwtel.posterous.com/tall-blog-blog-archive-not-natives-and-immigr>

The problem with 'going native' is: having a Myspace profile or a Facebook profile does not make you native. Immigrants will never use these social media platforms the way teenagers do, and they shouldn't either. Most of the youth see the Internet as merely a useful extension of the old world rather than as a completely new one, as opposed to the immigrants.

### SO-CALLED DIGITAL NATIVES

But what I find more interesting, is what happens when the so-called 'digital natives' as Prensky states it (again: people who were born in the eighties or nineties) are not particularly as interested in the internet as Prensky presumes. Are these kids digital immigrants? No, in their formative years and after, they were surrounded by technology, from the VCR to computer games, writing school projects on the computer and using electronic (interactive) toys. And what happened with the kids who had rich parents and therefore could have had access to expensive technology? For example: my nephew has every piece of electronics he desired: he owns almost all the Nintendo Gameboy variants, gaming consoles like the XBOX and Wii, he grew up with children's laptop and now has his own 'grown-ups' laptop, fully equipped with internet and games like World of Warcraft. He always tried to use electronics in an intuitive way, since he didn't speak the languages the games were spoken in. Neither did he know how to use a VCR, but through trial and error he manages to know exactly what he's doing.

His three sisters are his exact opposites, they play piano and use colouring books for their amusement, even though they have access to their own Gameboy, they just see it as another way of killing time. They're using the com-

puter mainly for school and social networking on the (Dutch) well-known networking website Hyves.

There seems to be a division in these young people born in the age of internet and computer access. The digital users are set apart from the digital natives. People with (or people who have parents with) money can have the most expensive technology in the world, if they just use it but not understand it, it doesn't make a difference. If their Macbook is broken they're going to take it to a dealer. This is no different to a digital immigrant or digital illiterate having someone fix their broken laptop or even their typewriter.

Everyone seems to be online, but how many of us learn to effectively use the internet? Many young people know how to find a movie or music, and where to express themselves or communicate with friends, but as it turns out: the internet is only a medium among many, they still want to meet friends and play sports. Prensky is treating the digital native as a whole new species that needs to be treated differently. But the fact is: kids of today are very similar to previous generations of young people: they are mainly interested in communicating with their peers.

This is confusing, it seems that the terms 'digital native' and 'digital immigrant' are not sufficient enough. Another way of thinking about the matter is enunciated in John Palfrey and Urs Gasser book, by introducing a new term, namely: the 'born digital'. In the homonymous book they're dividing the population into several categories:

1) those who are Born Digital and also Live Digital.

2) those who are Born Digital (i.e., at a moment in history, today) and are \*not\* Living Digital (and are hence not Digital Natives);

3) those who are not Born Digital but Live Digital, "Digital Settlers";

4) those who are not Born Digital, don't Live Digital in any substantial way, but are finding their way in a digital world: Digital Immigrants;

5) those who weren't Born Digital and don't have anything to do with the digital world, whether by choice, reasons of access or cash, and so forth.<sup>10</sup>

This division makes more sense, since there are so many kinds of users.

## CONCLUSION

Technology grows exponentially. The accelerating development of new technologies have consequences: "The computer in your cell phone today is a million times cheaper, a million times smaller, a thousand times more powerful" than computers in the 1960s (which took up whole buildings).

"That's a billion fold increase per dollar than we've actually experienced since I was a student" Ray Kurzweil says in a TED conference in 2009<sup>11</sup>. "The pace of exponential growth is what defines information technology, it's not just about computation". This means that as technology is rapidly developing, it's getting cheaper, and more available to everyone. Whether you want it or not, these elements of access and money are going to feed into technological literacy.

What defines a true digital native then? Or to put it in Gasser and Palfreys terminology: a live digital born? It's not about the technology or the artefact, but about the culture in which those technologies and artefacts are embedded. A culture which the immigrant will never be able to integrate. It's a way of thinking you cannot mimic, no matter how much you try, because it's not something you can learn, it's in the physics of your brain.

There will always be a 'previous generation' to know what life is like without something. To never know what the 'old country' was like, means to grow up not having to work a farm every day, to not know what it's like to have to walk everywhere, to grow up with a phone, to grow up with a TV, to grow up with cell phones,

<sup>10</sup> John Palfrey and Urs Gasser, Born Digital, August 2008

<sup>11</sup> Ray Kurzweil is mainly known for his writings about the singularity. A technological singularity is a hypothetical event occurring when technological progress becomes so rapid that it makes the future after the singularity qualitatively different and harder to predict.



to go to college with Facebook, to grow up with instant gratification of communication. The truth is that lives with and lives without any one of the above things are discerningly different experiences.

The main difference is between native and immigrant is deductive thinking and inductive.

A phenomenon Henry Jenkins calls "media convergence"<sup>12</sup>, allows users to keep track of complex plots and themes throughout different types of media: TV, video games, comics/ anime, movies, websites, books. Convergent card games like Pokémon, Yu-Gi-Oh, and Magic the Gathering involve hundreds or thousands of characters and cards, each of which is associated with innumerable bits of information.

If the digital natives can memorize 100 different Pokémon cards, surely they can remember something as simple as the capitals of the world and their geographical reference.

As a matter of fact, even three-year-olds can become connoisseurs on dinosaurs or trains, as Kevin Crowley has shown in his work on "islands of expertise"<sup>13</sup>

Today, informal learning has become more and more complex, demanding, and sophisticated at a time when much learning in school has become skill-and-drill test preparation.

How should we act on this? What is the understanding of how education must be transformed to best prepare digital natives for the future? A small example is the use of the calculator: as opposed to older ways of thinking, they should always be allowed in class, it's time the views on education changed, not so much education itself.

Perhaps education will change over time.

This is what happens with every generation, because technology is going to change. The only struggle we have now, is that this issue is new, because digital is new. This problem seems to be very time-based.

When we - the digital natives, grow up, we still once were digital natives, or: the digital natives of today will be the digital immigrants of tomorrow. Even though we're a little bit out of sync, we are the ones making a difference for the new digital natives (or whatever new technology is going to be invented).

Because the problem is, the digital immigrants of now can never fully understand what it's like to grow up in a world filled with video games, chat boxes, which makes it hard for them to change for example the educational system, as Prensky has tried with his educational games.

However, gaming is training. Natives learn a lot from games, just not enough skills they can actually use in the classroom. How could these games work if they wanted to educate?

The educational system could explore the possibility of games that ARE designed well, i.e. the gameplay itself has everything to do with the matter to learn. Video games should have the learning objective implemented in the game itself. From these games you can learn life skills, social skills, etc. You can learn about decision-making, logical thinking (through mission and submissions) by the use of contextual narratives in games.<sup>14</sup>

For instance, a game like Civilization V (a turn-based strategy game) could easily be adapted into a game that focuses on historical aspects and can teach us about WWII for instance.

A detective game could make use of the geography & science information you just learned in class. In many role playing games or shooter games the user is confronted by a locked door, or he needs to hack a computer in order to proceed the game. Also language could be embedded in a narrative game. Even simple games like room escape games require logical abilities, and can be altered to the subject matter taught in class. Maybe in the (far) future, different games will be developed just for school purposes, and the homework of this week could be: play one level of the game. So you can apply the logic of math of that week and that thing about atoms in physics class. A game could implement this knowledge through ways of gameplay, or simple interventions coherent to the storyline of the game, providing continuous challenges, flexibility, combining fun and realism, and supplying us with immediate, useful rewards, which gives us the feeling of accomplishment. Aside from the rewarding feeling you get from applying the knowledge you've learned in class this week to a new level, also new capabilities, a new part of the game to explore or even a new mission could be rewarded. These are surprisingly motivating, as the point of the game is not just to win it, but to keep playing, and learning.

In short, these games could teach based on judgement, skills, facts, reasoning, language, creativity, etc.

Finally, I want to go back to a big difference between a digital native's brain and that of a digital immigrant one: multitasking. As task-switching can actually make it harder for students to learn, multitasking doesn't necessarily make learning more difficult. However, it does

affect the way we are learning on a neurobiological level: multitasking decreases the degree of using the declarative memory, as opposed to habit learning. They rely on different parts of the brain, where the declarative memory allows more flexible use of the input.<sup>15</sup>

A lot of reading material in relation to education and technology has a digital immigrant slant. Urs Gasser and John Palfrey suggest the solution of engaging in a structured conversation with these young people about multitasking as one strategy that can help them cope with the sea of information. And understanding of the way multitasking challenges learning can even help students practice intentional learning and so improve the performance of their 'working memory'.

Well, if they're not already paying their full attention to a video game, that is.

<sup>12</sup> quoted by gamebasedlearning.org.uk

<sup>13</sup> Crowley & Jacobs, 2002, quoted by gamebasedlearning.org.uk

<sup>14</sup> Marc Prensky, Digital Game-Based Learning - Types of Learning and Possible Game Styles, McGraw-Hill, 2001

<sup>15</sup> Russell A. Poldrack quoted by Urs Gasser and John Palfrey in 'Mastering Multitasking', March 2009